Notice of Allowability	Application No.	Applicant(s)	
	10/813,815	MANNA ET AL.	
	Examiner	Art Unit	
	Krishnan S. Menon	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to *12/18/06*.

2. ☒ The allowed claim(s) is/are *1-20; RENUMBERED 1-18*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Louis Weinstein on 1/18/07.

The application has been amended as follows:

Claims were amended to correct typographical errors, remove certain 35 USC 112, second paragraph, issues, delete duplicated claims, add a new claim to provide appropriate coverage of applicant's invention. The Amended Claims List follows on a fresh page below.

Claims 1-10, 12 and 14-20 are allowed.

Amendments to the Claims:

1. (currently amended) An apparatus for separating impurities from a liquid by a non- dispersive contacting of a liquid-liquid reactive system, said liquids being immiscible with each other, which comprises:

a cylindrical column separated into a first stage and a second stage, a plurality of modules of packed metallic fibers mounted in the first stage of said column on a support, each of said ~~members~~ modules having said metallic ~~fibres~~ fibers mounted within a tube in said first stage, said tube having a bottom end and a top end, a cap on said top end, the caps provided with orifices designed for a specific flow rate,

a first distributor provided in the first stage of the column for distributing a first liquid located above said support such that said first liquid completely wets said fibers by capillary action and forms a film thereon, said first distributor comprising a plurality of said tubes, each tube having a diameter greater than the holes in said cap, a second distributor fitted at a bottom portion of the second stage for distributing a second liquid containing impurities on to the metallic fibers, said second distributor having a first plurality of holes each of a diameter greater than the diameter of said tubes, and a second plurality of holes being smaller ~~then~~ than said first plurality of holes and adjacent the holes of the first plurality of holes and each of said tubes extending between said first and second distributors, the ~~cap~~ top end being adjacent the first distributor and a bottom end protruding through said first plurality of holes in the second distributor,

wherein said second liquid flows concurrently with said first liquid so that the impurities present in said second liquid react with said first liquid and dissolve therein; and

a separator connected to a bottom end of said column for receiving said fibers and separating the first liquid and purified second liquid.

2. (original) An apparatus as claimed in claim 1, wherein the first distributor separates the cylindrical column into a first stage and a second stage in addition to distributing the first liquid.

3. (previously presented) An apparatus as claimed in claim 1, wherein said packed metallic fibers are comprised of fine wires packed in at least one tube in order to enable at least one of a mass transfer and mass transfer with chemical reaction to take place.

4. (currently amended) An apparatus as claimed in claim 1, wherein said modules are comprised of [[a]] <u>said</u> plurality of tubes held inside a metallic shell, said shell being supported by one of said separator and independently of said separator.

5. (Original) An apparatus as claimed in claim 1, wherein the modules are supported in said column at their upper ends.

6. (Original) An apparatus as claimed in claim 1, wherein the modules are suspended from tie rods mounted in said first stage of said column and the metallic fibers are supported and looped around said tie rods.

7. (previously presented) An apparatus as claimed in claim 1, wherein the packed metallic wires have a sinusoidal wave form so that an inter fiber void space is uniformly maintained.

8. (original) An apparatus as claimed in claim 1, wherein the metallic fibers are chemically treated to enhance wettability.

9. (original) An apparatus as claimed in claim 1, wherein the metallic fibers are made of materials selected from stainless steel, phosphorous bronze, glass fibers and plastic materials.

10. (previously presented) An apparatus as claimed in claim 1, wherein the metallic fibers are of a thickness of from 0.1 mm to 0.3 mm.

11. (cancelled)

12. (previously presented) An apparatus as claimed in claim 1, wherein the first distributor is provided with a plurality of holes having a diameter ~~is~~ at least equal to a diameter of the packed metallic fibers.

13. (cancelled)

14. (previously presented) An apparatus as claimed in claim 1, wherein the separator provided at the bottom of the column is provided with at least one heating coil.

15. (currently amended) A process for separating impurities from a liquid by non-dispersive contacting of liquid-liquid reactive systems which comprises:

distributing a first liquid over a first distributor stage having a support with at least one tube of packed metallic fibers mounted in the first distributor stage of a two stage distributor, the tube having bottom and top ends and a cap on the top end with an opening designed for a specific flow range of the first liquid and arranged so that the support is completely wetted by said first liquid by capillary action, said first liquid forming a film over said support,

distributing separately by a second distributor stage of the two stage distributor, said ~~which~~ second stage distributor ~~has~~ having larger holes larger than the diameter of said tube and smaller holes adjacent to the larger holes, extending the tube between the first and second distributor stages with the tube protruding through the larger holes

of the second distributor, a second liquid containing impurities to be removed, said second liquid being immiscible with said first liquid and flowing concurrently with said first liquid so that dissolved impurities in said second liquid react with the film formed by said first liquid and dissolves therein,

providing a separator ~~and extending the tube between the first and second distributor stages~~ whereby the first and second liquids flow along the fibers and downward to the separator, and

collecting the pure second liquid from the separator.

16. (previously presented) A process as claimed in claim 15, wherein the first liquid is selected from a group consisting of at least one of a caustic solution or amine solution ~~or~~ and both and said second solution is a hydrocarbon stream.

17. (previously presented) A process as claimed in claim 16, wherein the hydrocarbon stream is selected from a group consisting of LPG, gasoline, naphtha, kerosene and diesel.

18. (original) A process as claimed in claim 15, wherein the impurities present in the second liquid are naphthenic acid, hydrogen sulfide, mercaptans and COS.

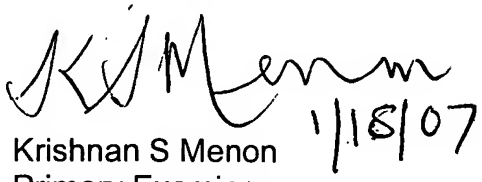
19. (previously presented) A process as claimed in claim 15 further comprising recycling the first liquid.

20. (new) An apparatus as in claim 1 wherein said metallic fibers extend substantially into said separator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



1/18/07

Krishnan S Menon
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Art Unit 1723